3.E.2.b (5) References. See 46 CFR Part 62 for information on main boiler controls, alarms and shutdowns, and how requirements for these features relate to levels of vessel manning. Additionally, see below for information on propulsion system automation.

c. Auxiliary Boilers.

(1) General. Auxiliary boilers include those shipboard units that are not used for propulsion. The high pressures and temperatures desirable for use with steam turbines make watertube boilers favored for main boilers. Auxiliary boilers, however, are supplied in quite a variety of forms, including both water and firetube types, for quite a variety of applications. These units are categorized in 46 CFR Table 54.01-5(a) as fired steam boilers, hot water heating boilers, hot water supply boilers, an unfired steam or hot water boilers (see table for applicable regulations). Except for some unfired boilers and some small electric water heaters, these units are designed, fabricated, and tested in accordance with Section I or IV of the ASME Boiler and Pressure Vessel Code, as modified by 46 CFR Parts 52-53 for Coast Guard purposes. Boilers that are not exempt from the requirements of 46 CFR Parts 52-53 must be equipped with appropriate safety valves. These valves will have quality construction, certified capacities, provision for sealing after setting the pressure, and other features required by the Coast Guard. The valves are not usually pilot-actuated on auxiliary boilers. Features and operating characteristics of boiler safety valves differ significantly from those of ordinary pressure relief valves.

(2) Fusible Plugs. Fusible plugs are also required on all boilers except watertube boilers and heating boilers operating at 30 psig or less (see 46 CFR 52.01-50). Although these plugs may relieve some pressure and provide some cooling of furnace temperature, their main purpose is to provide warning for the operator in case of extremely abnormal operation. The plugs are particularly important for a hand-fired or solid fuel boiler. Plugs are cleaned and inspected regularly to prevent unintentional failures. Low water is the usual cause of fusible plug failures, but excessive scale on the plug or adjacent metal can also melt the plug. How useful a fusible plug is in limiting furnace temperatures depends on the individual design of the boiler and controls, the plug locations, and the amount of forced draft.

(3) Relative Effects of Fuel Consumption. Fired auxiliary boilers include boilers fired by either oil or electricity. Generally, the specific requirements of 46 CFR 52 or 53 apply to these boilers, with appropriate requirements for automatically controlled boilers taken from 46 CFR 63.05 or 63.10. Control system requirements vary depending on the heat input rating, with more detailed provisions occurring for units with a heat input rate over 117 kW.

(4) Automatic Control Systems. Automatic control systems for auxiliary boilers will be reviewed by the MSC. Although approvals are issued on an individual vessel basis, standard design files